

Read Chapter 12 on Meteorology from the Earth  
Science Book Pages 299-311, 317-323

Define the following words:

Meteorology  
Climate  
Weather  
Air mass modificaion  
Coriolos effect  
Wind systems  
Isopleths

Questions: pp326-327: 1,3,4,6,7,8,12,13

Jun 18-10:01 AM

For this assignment you will create a timeline of the important dates in the development of astronomy. The time line must be created using a straight edge and different colors. Make it to scale for the date. Start by making a list of times, locations and events.

Your timeline must include the date, the event, the person responsible for the event, where it happened and why its important. Your timeline must have at least 20 dates and people.

1

2

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## History of Astronomy

From around 3000 BC onwards, astronomy in its most primitive form had developed.

Early civilizations had vastly differing views of what the universe was like. Generally speaking the concept was of a solid earth on top of a watery underworld.

The Greeks were the first civilization to really advance astronomy as they did with much science. They understood a flat earth with a spherical, rotating sphere above. The Greeks where brilliant philosophers and it was most like Thales that dove the mind forward. In around 500 BC another philosopher, Anaximander, suggested, possibly for the first time, that the world was round to explain effects of the horizon.

By 300 BC Plato and Aristotle had furthered the idea of a spherical earth - how else could eclipses be explained - circled by all the known heavenly bodies. Not long after Aristarchus proposed that the observed motions could also be understood by placing the sun at the centre of the universe. Philosophy, however, did not find such a suggestion attractive as it made the earth inferior.

There was one final great Greek astronomer before the time of Christ - Hipparchus. He catalogued over 1000 stars keenly noting their positions and motions.

His work would have been long forgotten were it not for Ptolemy who some 300 years later published some of the results in with his own work. Unfortunately this system remained in place until the 1400s and became, for no apparent biblical reason, part of church doctrine.

Eventually the problem came to the surface again. In 1473 Nicholas Copernicus was born in Poland. He set out to try and improve on Ptolemy's system that seemed to have a few inaccuracies. He spent many hours observing and making calculations and reached the conclusion that the earth was just a planet and orbiting the sun. This theory matched all observations and was wonderfully simple - but the church did not like it. Copernicus, realising that his views would be deemed heretical waited, until 1543, the year he died, before finally publishing his results. The church didn't like them especially Martin Luther who said they were anti-biblical. This is an interesting statement for nowhere in the Bible are such facts mentioned. Unfortunately Giordano Bruno was burnt at the stake in 1600 for adopting the Copernican beliefs.

Tycho Brahe was a Danish astronomer born in 1546. His distinguishing feature was his nose. While at university he ended up in a duel with a fellow student and lost part of his nose. He replaced the lost part with a curious mixture of gold, silver and wax. Despite this he was a brilliant observer and amassed huge amounts of data on planetary motions. Unfortunately for him he was a believer in the geocentric theory and never looked at his work in another light. When he died in 1601 his young assistant Johannes Kepler took over his work. He started to analyze some of the data and realised the only fit to the data came when one adopted the heliocentric theory. As a result he published three laws of planetary motion which were to revolutionise astronomy.

Galileo Galilei was born in 1564 and made many discoveries but also ran into conflict with the church. He used one of the first ever telescopes to observe the moon, Venus, the sun and Jupiter. He discovered four moons around Jupiter now known as the Galilean satellites. His downfall came in his published works that agreed with the heliocentric theory. The church summoned him and on pain of death was forced to give up his work in astronomy and recant his views.

In 1642 Galileo died but another astronomer was also born - Sir Isaac Newton. Newton did work in many fields but his chief contribution to astronomy was his laws of gravitation. These laws held true for four hundred years until Einstein's theory of relativity.

Since then there have been many other achievements in astronomy some theoretical and others more practical but the basic tools had been laid out by 1700. As telescopes improved so did observations and in 1781 Herschel discovered Uranus. In 1846 Galile found Neptune and in 1930 Tombaugh discovered Pluto to complete the known solar system.

It wasn't until late this century with the space age that progress equivalent to that of the early Greeks was made. In 1957 the Russians launched the Sputnik craft placing man made objects in to space for the first time.

By 1965 Yuri Gagarin had become the first man in space, Valentina Tereshkova the first woman in space and Leonov had undertaken the first space walk.

In 1969 man set foot on another heavenly body for the first time.

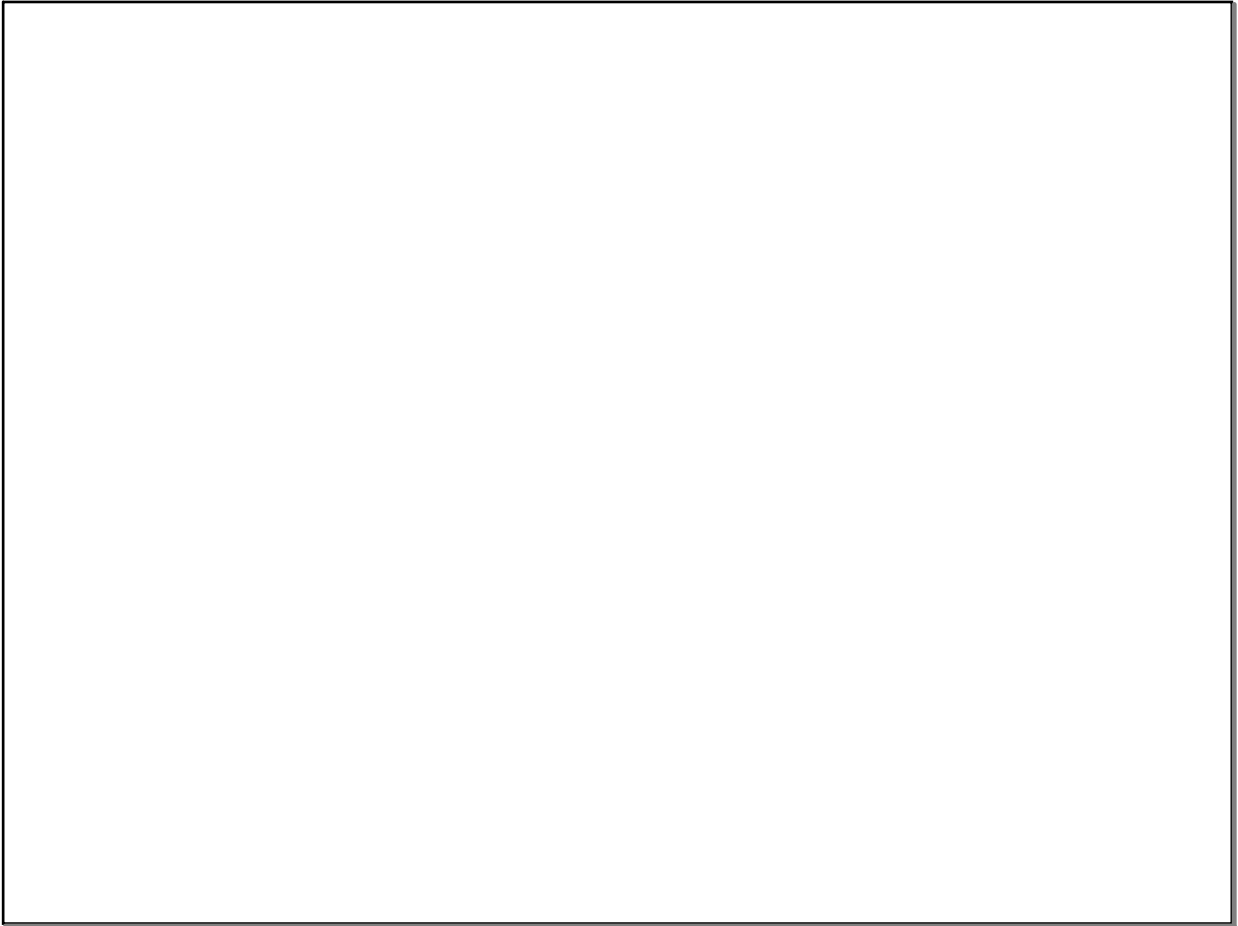
In December 1972 man left the moon for the last time - NASA was forced to abandon future missions due to finance.

In the early to mid seventies the Pioneer and Voyager - <http://kids.asi.nasa.gov/voyager/voyager.html> - <http://kids.asi.nasa.gov/voyager/voyager.html> were launched. Over the next 15 years they were to provide us with a wealth of information as they visited all the planets in the solar system except Pluto. deep space probes

Man's involvement in space had developed a new role with the American Skylab program and the Russian Soyuz spacecraft housing men and women in space for days on end. In 1981 the [http://www.bj.nasa.gov/office/osp/History\\_of\\_space.html](http://www.bj.nasa.gov/office/osp/History_of_space.html) [http://www.bj.nasa.gov/office/osp/History\\_of\\_space.html](http://www.bj.nasa.gov/office/osp/History_of_space.html) program got underway and there have now been upwards of 90 Shuttle missions. The International Space Station marked a new era in International cooperation in space.

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